

**DEVELOP.** After the students' flowchart and storyboards have been approved, teams take turns at the computer stations. Ensure students are familiar with various audio formats and compression techniques (see Chapter 5). If teams are not working on the computers or on their storyboards, students can be:

- Writing a persuasive report for a future debate explaining why their music style is the best
- Developing quiz questions about their project for other students
- Developing a board game about the life of a composer
- Reading a biography of a composer and designing a diorama depicting and explaining an important event in the composer's life
- Learning and interpreting the lyrics to a particular song
- Creating a watercolor or acrylic painting that depicts the mood or feelings associated with a particular piece of music
- Learning to play a music selection
- Creating a composition of their own

As students complete their multimedia projects, another team reviews the project for problems or errors (see Chapter 7). The corrected project, along with the project's rubrics, group and self-evaluations, bibliography sheets, and journal entries, is submitted to the teacher.

**EVALUATE.** Both students and teachers evaluate the projects. The students receive a group grade based on the teacher and peer evaluations. Students receive an individual grade based on their group, self-, and intragroup evaluations. When the grading is complete, a main menu can be developed that links the projects together. The remaining column on the KWL Knowledge Chart can now be completed. Teachers may want to create a quiz or short essay exam that assesses students' knowledge of the presented projects.

### ***Sherlock Project: A Problem-Solving Adventure***

**Lesson Description:** This project focuses on the students' ability to solve problems, research, and develop interdependent clues to produce a multimedia project that demonstrates their processing skills. In addition, graphics and pop-up text boxes can be required components of the project. Students are required to create a mystery that is solved by finding and deciphering the various clues within the project. For example, a group may use the theme of a haunted house and tell the story of how the only way out of the house is to enter the correct combination into the passageway door. Throughout the project, students create mathematical and logic problems that will help users determine the correct code. For example, in the first room of the house, the following clue could be discovered when users click on a ghost (see Figure 8.3):

It happened on a scary night,  
One I know was full of fright;  
Yet Joey Jones, as calm as could be,  
Said, "Divide 800 by the answer in Room 3."

A text box may appear, the clue may be recorded audio, or both. Room three's clue might appear when users click on a book (see Figure 8.4):

Weary travelers visit here;

Guess how many times a year?  
 $(7 * 8) - (10 + 21)$

By combining the clues in rooms one and three, the answer to room one is 32. Room six's clue may indicate that this is the first number in the combination. For example, upon visiting room six, the users may find the following scrawled on the wall (see Figure 8.5):

### Room 1 = 1st number to combination

Projects can be made much more complex and sophisticated by integrating current areas of study, incorporating outside research into the answers to the clues, making answers to clues dependent on more than one other clue, and incorporating different media that become part of the clues. To begin, limit students to six clues in the puzzle.

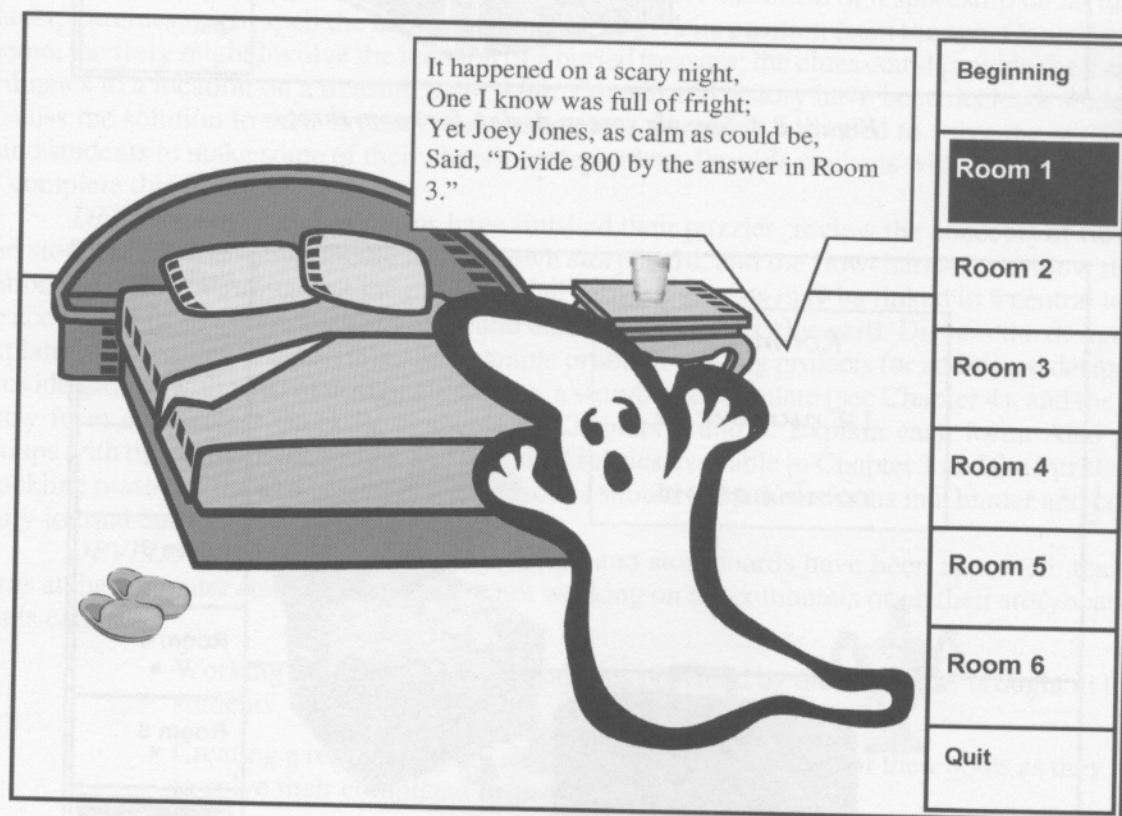


Figure 8.3. Sample screen design for room one.

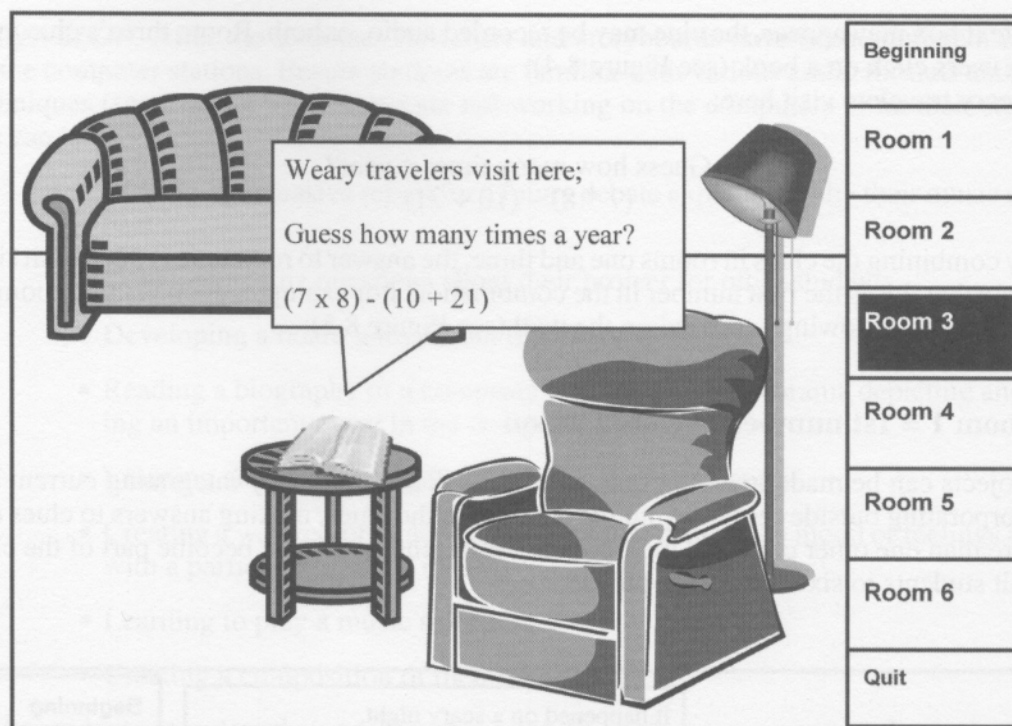


Figure 8.4. Sample screen design for room three.

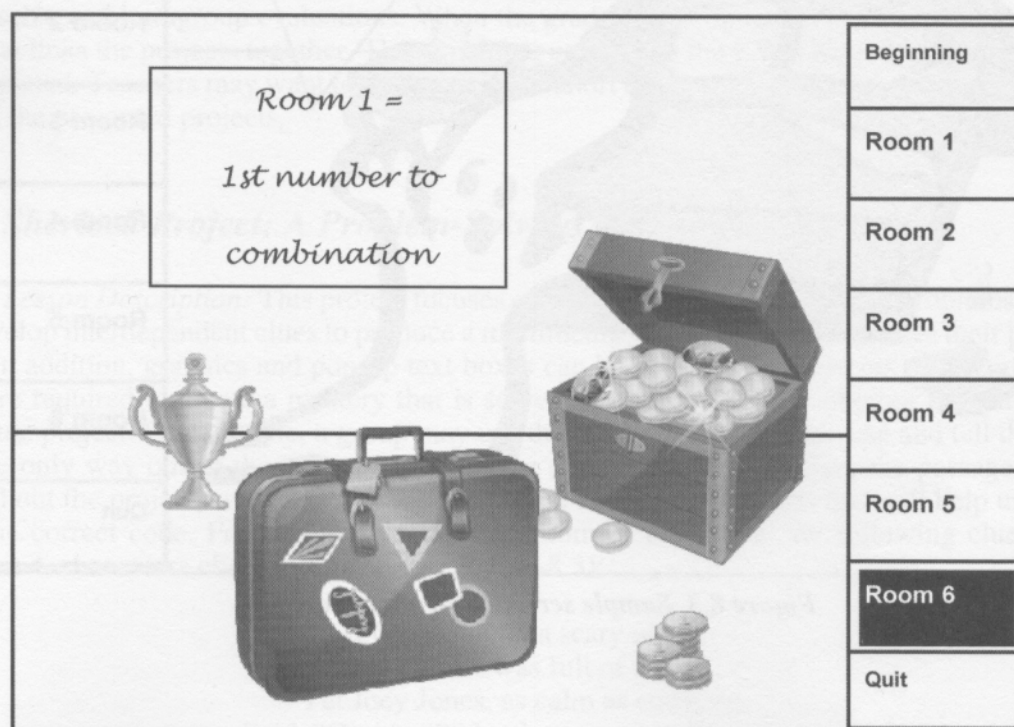


Figure 8.5. Sample screen design for room six.



**DECIDE.** Assign student teams as described in previous chapters. As a class, discuss the different strategies students can use when solving a math problem, as well as the basic problem-solving steps: (1) understanding the problem, (2) devising a plan, (3) carrying out the plan, and (4) looking back. Discuss the importance of gathering all information before coming to a conclusion about a problem. Illustrate this by distributing one puzzle clue to each different student group (see the Introductory Puzzle blackline master at the end of this chapter). Ask the students if they can solve the puzzle. Obviously, they cannot, because they each hold only one piece to the puzzle. Randomly select groups to read their puzzle pieces aloud, while everyone else takes notes. Inquire whether students can solve the puzzle after each clue. Note that some clues may not make any sense until other clues are read, and that some clues are interdependent (they rely on other clues for additional information). Some clues may have to be repeated. After all of the clues are read, discuss the answer and how students arrived at it. Reflect on the interdependent puzzle pieces and the importance of gathering and understanding all the clues.

Explain that students are going to create a multimedia project based on the puzzle example. Their project should contain a theme (e.g., a haunted house, a pirate's treasure, outer space, the jungle) and their clues should be hidden (pop-up text boxes) or part of the graphic environment. Users should experience traveling from room to room or place to place.

Let student teams brainstorm about a specific theme and a mystery to go along with it. For example, using an outer space theme, the story might involve the crash of a spaceship on an unknown planet; the clues might spell the name of the planet or give its position from the sun. Or, using a pirate theme, the story might involve the location of a buried treasure; the clues could provide the  $x$  and  $y$  coordinates to a location on a treasure map. After a theme and a story have been decided, students can discuss the solution to their mystery and create clues that users will need to solve the mystery. Remind students to make some of their clues interdependent. Provide students with two or three periods to complete this first step.

**DESIGN.** Once student teams have finished their puzzles, review the concepts of flowcharts and storyboards. Each clue should have its own storyboard, and the flowchart should show the navigation possibilities throughout the project. Clue cards or screens may be linked to a central location, be accessible from every clue card, or found attached to another clue card. Discuss the design issues explained in Chapter 4. If possible, view sample problem-solving projects for additional design ideas. Provide groups with a list of design guidelines, a storyboard template (see Chapter 4), and the journal entry form and project checklist available in Chapters 3 and 4. Explain each form. Also provide groups with the storyboard, design, and technical rubrics available in Chapter 7 and the Puzzle Rubric blackline master at the end of this chapter. Groups should keep these forms in a binder and complete daily journal entries.

**DEVELOP.** After the students' flowchart and storyboards have been approved, teams take turns at the computer stations. If teams are not working on the computers or on their storyboards, students can be:

- Working on problem-solving puzzles provided by the teacher or brought in by other students
- Creating a record-keeping sheet for users to keep track of their notes as they attempt to solve their completed project
- Researching and contributing to a class book on mathematical magic tricks
- Reading and acting out a mystery on video
- Playing problem-solving games like Master Mind and chess
- Researching and reporting on famous (fictional or nonfictional) detectives
- Writing a mystery and creating puppets for its production

As students complete their multimedia projects, another team reviews the project for problems or errors (see Chapter 7). The corrected project, along with the project's rubrics, group and self-evaluations (see Chapter 7), and journal entries, is submitted to the teacher. Provide the students with at least 10 class periods on the computer to finish a 10-card or screen project, especially because some of the students will spend their development time creating and researching different pictures for their project's theme. Clip art libraries should be made available to the students.

**EVALUATE.** Following the teacher's evaluation of the project, peers need to evaluate each other's projects as well (see Chapter 7), remembering that specific content may or may not be an integral part of the project. Emphasis should be placed on the clarity of information, sophistication of the puzzle, use of graphics, and overall design. For alternative evaluation forms, see the puzzle rubric and Peer Puzzle Evaluation blackline masters at the end of this chapter. Each Sherlock project should be shared and solved by the different groups.

## SUMMARY

The possibilities for multimedia projects are endless, and emphasis on student learning outcomes can be placed in a variety of areas. This chapter presented sample multimedia projects that focus on different areas of the curriculum and learning outcomes. It also provided a variety of ongoing activities for students not working on computers. Extension activities for the projects presented in this chapter include sharing projects with peers over the Internet or with the school and community at local conferences. Projects may also be recorded to DVDs for student distribution and archival purposes.

## BLACKLINE MASTERS

This chapter contains variations on several blackline masters presented in other chapters, providing teachers with additional ideas for creating their own checklists and evaluation forms that are specific to the students' projects and ability levels. Specific forms have been designed for the All About Me and Sherlock projects. References are also made to the checklists and evaluation forms in other chapters. Blackline masters in this chapter include:

- All About Me: Flowchart: a flowchart for All About Me projects
- All About Me: Storyboard Template: an alternative storyboard layout
- All About Me: Project Checklist: a specific checklist for All About Me projects
- All About Me: Teacher Evaluation: a simplified evaluation sheet for All About Me projects
- All About Me: Peer Evaluation: a specific evaluation sheet for All About Me projects
- Introductory Puzzle: a story problem containing independent clues
- Puzzle Rubric: one way of evaluating problem-solving adventure projects
- Peer Puzzle Evaluation: an alternative peer evaluation form for problem-solving adventures.